occurred I was able to fully observe the transparent male organ. I am not aware how far the mode of holding the female may be practised by other insects having a like structure to this, but this record can stand as to what extraordinary use the wings may be put and their adaptability for the purpose for which they were created.

February 27th. I went out to-day on a special hunt for *Boreus*, armed with vials of ether and alcohol. The first pair I discovered I dropped into the vial of ether, but they separated instantly. The second pair I decided to try to freeze, so lifted them and transferred them to a box of snow. The male released his wing-hold and ran around with the female in an upright position, holding only by the claspers. The female made no effort to extend her legs, but kept them in the previously described position, folded close to the body. The male made repeated efforts to regain his wing-hold by jerking the abdomen upward, thus throwing the female forward within reach of his wings, which snapped together at every such effort. I left them quiet in the box of snow and the male soon regained his wing-hold. Upon my pouring a little ether on the snow and closing the box in the hope of reducing the temperature to a sufficiently low degree to render them comatose, the male again released his wing-hold. It seemed thus impossible to kill them in the desired position. I transferred them to the vial of ether. I think the female can release herself even at the instant of death, and it remains yet to be seen if I can succeed in freezing them in the desired position by the aid of a freezing mixture applied outside to the box in which they are enclosed.

INSECTS COLLECTED IN THE OKANAGAN VALLEY, 1913.

By E. M. Anderson, Provincial Museum, Victoria.

Early in April, accompanied by an assistant, Mr. C. B. Garrett, I was detailed by the Department to collect birds and mammals for the Provincial Museum, Victoria, B.C. Although my work was chiefly confined to collecting and preserving birds and mammals, we managed to secure about 4,000 entomological specimens. A large number of very interesting forms of insect-life fell to the net, many specimens still awaiting identification, mostly in Coleoptera, Hymenoptera, and Diptera.

From my point of view, the Okanagan Valley offers to the entomologist one of the best collecting-grounds in British Columbia, and I feel certain that, with a season's systematic research, an enthusiastic student would add many species to the British Columbia list, which is far from being complete.

The weather during the early part of April was very unsettled, still keeping cold and wet, and nothing much in the insect line could be found save a few beetles, crickets, and a small scorpion under bark. After collecting a week at Penticton, we moved camp south sixteen miles to Shuttleworth Creek, a distance of about two miles from Okanagan Falls. On arrival at the creek things began to look brighter, the sun was shining, and we observed a number of insects on the wing. Here we camped from April 15th to 20th, taking at intervals a series of the early blue *Cyaniris nigrescens*, *Incisalia eryphon* and *I. iroides*, *Pontia sisymbri*, *P. occidentalis*, *Symethe crcusa*, *Ansonides*, and *Sara*, the beautiful orange-tip. A few Noctua were collected at light, the nights still keeping cool; nothing but an occasional *Xylomiges simplex*, or common Geometer, made their appearance. *Drasteria crassiuscula* and *Leptarctia californiata* were common about the camp on sunny days.

On April 20th we moved camp to Schoonover Cabin, an old trapper's home in the mountains at an elevation of about 3,500 feet. With an early start, accompanied by Charlie Shuttleworth and two pack-horses, we started on our way up the mountain-side through a drizzling rain, which shortly afterwards turned into sleet and snow, this making travel slow over the slippery mountain-trail. We travelled about five hours, arriving at the cabin about 1 p.m. The horses, tired out, were immediately unpacked, a camp-fire made, and after a meal of hot coffee

and beans we were soon warmed through and felt fine after our tramp of about ten miles.

The weather was anything but promising for insect-life during our stay of a week, amidst continual sleet and snow falls, only seeing the sunshine for an hour or so at a time. Nevertheless, it was remarkable how much insect-life could be found as soon as the sun made its appearance after a snow-storm. *Pontia occidentalis, P. sisymbri, Synchloe creusa, Thecla cryphon, T. mossi,* and *Euclidea cuspidea* were fairly common close to the cabin in a sheltered clearing in the woods. Several small day-flyers and a few specimens of Hymenoptera and Coleoptera were also taken.

We departed from Schoonover Cabin at 1 p.m. on April 26th, arriving at Shuttleworth Creek about 5 p.m. *Thecla iroides* and *Lycæna nigrescens* were common in spots along the mountain-trail. With the use of a lantern we collected every fine night in camp, but with little success, only a few *Cucullia* and Geometers being attracted by the light. Being disgusted with our previous catches, we decided to try our luck in an orchard a short distance from the camp.

On the night of May 5th moths were found in countless numbers feeding on cherry and peach blossoms. By spreading a blanket under the tree and shaking the branches carefully, a dozen or more moths would fall intoxicated to the ground, and with the use of a lantern and forceps the desired specimens were quickly placed in killing-bottles and pinned and labelled the following day. We collected long interesting series of *Mamestra, Xylina, Xylomiges, Graphiphora,* and other early moths mentioned in list of captures in the following pages. About 1,000 moths were taken in two nights.

The most undesirable of insects during April and May were the ticks, which were so abundant in the grease-wood benches in the vicinity of our camp that Mr. Garrett and I were both badly bitten, and at times the jaws of ticks were found well buried under the skin, and had to be removed with a lance, absolutely refusing to release themselves when coal-oil or the lighted end of a cigar or cigarette was applied (a method frequently used by settlers).

On May 16th another camp was pitched at Vaseaux Lake, seven miles south of Okanagan Falls. Camping close to the roadside and lake-shore, we were situated in an ideal spot for collecting. We managed to find time to collect daily during the heat of the day, taking scores of *Papilios, Lemonias, Pontias, Synchlœs* (orange-tips), skippers, and blues, and many others too numerous to mention.

A second trip to Schoonover Mountain was made with the aid of pack-horses on June 1st, returning to Vaseaux Lake on June 6th. The trip over the mountain was a pleasant one, and instead of encountering rain and snow, as in April, the weather was at its best, trees and wild flowers were in splendour, and nature seemed at peace with all the world. In crossing Schoonover prairie, insects were found in thousands—blues, skippers, *Erebias, Brenthis, Alypias,* etc.—and many small day-flyers hovered all round us as we weuded our way through the tall grass. The prairie is a beautiful grassy plateau at an altitude of about 3,000 feet on the south side of Schoonover Mountain.

Returning from the mountain, we camped from June 6th to July 8th at Vaseaux Lake, Dog Lake, Okanagan Falls, and Penticton. Considerable rain fell in June; nevertheless, we took advantage of all the fine weather and added a large variety of insects to our collection. It was remarkable to note the disappearance of certain species of Lepidoptera after a heavy rainfall of two or three days' duration. Some insects quite common previous to a wet spell were entirely wiped out of existence: this was noticed principally among the blues and *Theclas*. The skippers and other forms seemed to survive all weather conditions throughout the season.

I shall endeavour to make a list of the most important captures. There still awaits a number of insects to be classified and arranged in the Museum collection.

Before concluding, I wish to thank Mr. C. B. Garrett for his valued assistance in the field, and also for his careful and painstaking methods in the preservation of the specimens.

Lepidoptera (Butterflies).

Papilio daunus. Common, May and June, Vaseaux Lake.
Papilio eurymedon. Common, May and June, Vaseaux Lake.
Papilio rutulus. A few taken at Vaseaux Lake, May 20th to 30th.
Papilio turnus. Vaseaux Lake, Schoonover Mountain, May 15th, June 6th.
Papilio zolicaon. Common, Okanagan Falls, May 10th; Schoonover Mountain, June 1st to 6th.
Pontia beckeri. Osoyoos, May 23rd.
Pontia sisymbri. Okanagan Falls, April 12th, May 15th. Common.
Pontia occidentalis. Okanagan Falls, April 12th, May 15th. Common.
Pontia rapæ. Okanagan Falls, April 12th, May 15th. Common.
Synchloe creusa. Okanagan Falls, April 12th, May 15th. Common.
Synchloe ausonides. Okanagan Falls, April 12th, May 15th. Common.
Synchloe sara. Okanagan Falls, April 12th, May 15th, and June 6th. Common.
Eurymus eriphyle. Vaseaux Lakke, Okanagan Falls, May 20th to June 20th. Common.
Eurymus hatfordii (?). Okanagan Falls, May 25th.
Eurymus occidentalis. Vaseaux Lake, May 18th; Osoyoos, May 25th.
Brenthis freija. Schoonover Mountain, common, June 1st to 6th.
Brenthis bellona. Schoonover Mountain, common, June 1st to 6th.
Brenthis epithore. Schoonover Mountain, common, June 1st to 6th.
Lemonias cooperi. Okanagan Falls, Vaseaux Lake, June 1st.
Lemonias palla. Vaseaux Lake, June 1st to 10th.
Lemonias whitneyii. Vaseaux Lake, June 1st to 10th.
Lemonias baroni (?). Vaseaux Lake, June 12th.
Phyciodes pratensis. Okanagan Falls, June 11th.
Phyciodes mylitta. Vaseaux Lake, June 10th.
Eugonia californica. Schoonover Mountain, June 1st.
Euvanessa antiopa. Okanagan Falls, April 15th.
Basilarchia archippus. Vaseaux Lake, May 14th to 30th.
Basilarchia lorquini. Penticton, June 30th.
Cercyonis charon. Vaseaux Lake, June 15th.
Erebia epipsodea. Vaseaux Lake, Schoonover Mountain, June. Common.
Cœnonympha elko. Vaseaux Lake, Schoonover Mountain, May 15th and June.
Anosia plexippus. Vaseaux Lake, May 15th to 30th.
Uranotes melinus. Okanagan Falls, May 20th.
Callipsyche behrii. Vaseaux Lake, June 26th.
Incasalia iroides. Okanagan Falls.
Incasalia mossi. Schoonover Mountain, June 1st to 6th.
Incasalia eryphon. Okanagan Falls, Schoonover Mountain, May 4th, June.
Epidemia zerœ. Vaseaux Lake, June 10th to 15th.
Epidemia helloides. Vaseaux Lake, June. Common.
Cupids heteronea. Schoonover Prairie, June 1st to 6th.
Cupids fulla. Okanagan Falls, Schoonover Mountain, common, May 20th to June 6th.
Cupids sæpiolus. Okanagan Falls, Schoonover Mountain, common, May 20th to June 6th.
Nomiades antiacis. Common everywhere in the valley, May and June.
Nomiades couperii. Schoonover Mountain, June 1st to 6th.
Phædrotes sagittigera. Schoonover Mountain, June 1st to 6th.
Rusticus melissa. Vaseaux Lake, June 10th to 15th.
Rusticus anna. Vaseaux Lake, June 10th to 15th.
Cyaniris nigrescens. Common in April and May, Okanagan Falls.
Everes comyntas. Vaseaux Lake, May 20th.
Amblyscirtes vialis. Common in May and June, Okanagan Falls.

Pamphila palaemon. Schoonover Mountain, June 1st to 6th.
Erynnis manitoba. Vaseaux Lake, May 30th; Schoonover Mountain, June 5th.
Thymelicus cernes. Schoonover Mountain, June 3rd.
Thorybes pylades. Okanagan Falls, June.
Pholisora catullus. Okanagan Falls, Schoonover Mountain, June 1st to 6th.
Thanaos icelus. Vaseaux Lake, May 30th.
Thanaos persius. Okanagan Falls, June 1st.
Hesperia cæspitalis. Okanagan Falls, Schoonover Mountain, May and June. Common.

HETEROCERA (MOTHS).

Lepisesia ulalume. One rubbed specimen, Schoonover Mountain, June 3rd.
Marumba modesta. Penticton, July 5th; one specimen.
Samia columbia. Okanagan Falls, June 10th; one specimen.
Scepsis cockleyi (?). Penticton, June 28th; two taken at light.
Leptarctia californiata. Okanagan Falls, common in April and early part of May.
Isia isabella. Penticton, July 5th.
Apantesis achaia, var. ornata. Vaseaux Lake, May 30th to June 10th; six specimens taken.
Androloma maccullochi. Common at Schoonover Mountain, June 1st to 6th.
Hadena cogitata. Penticton, July 3rd.
Xylomiges simplex. Okanagan Falls, common in May; took five in orchard.
Xylomiges perlubens. Okanagan Falls, common in May.
Xylomiges candida. Okanagan Falls, common in May.
Grapiphora pacifica. Okanagan Falls, common in May.
Stretchia normalis. Okanagan Falls, May 6th to 8th.
Xylina contenta. Common on blossoms, May 6th.
Cucullia (?). Okanagan Falls, May 1st to 5th; at light.
Rancora solidaginis. Okanagan Falls, May 3rd; at light.
Orthosia crispa (?). Okanagan Falls, May 5th.
Heliothis (?). Vaseaux Lake, May 22nd; one specimen.
Drasteria erechtea. Okanagan Falls, May 5th to 20th.
Drasteria crassiuscula. Okanagan Falls, May 12th to 20th.
Euclidea cuspidea. Okanagan Falls, May and June. Common.
Nadata gibbosa. Penticton, June 5th; one specimen at light.
Gluphisia septentrionalis. Okanagan Falls, April 28th; one specimen at light.
Euthyatira pudens. Okanagan Falls, May 6th; one specimen at blossoms.

GEOMETRIDÆ (GEOMETERS).

Tephroclystis (? sp.). Okanagan Falls, May 1st to 10th; at light.
Hydria undulata. Okanagan Falls, April 27th; at light.
Eois sideraria. Schoonover Mountain, June 1st to 6th. Common.
Lycia cognataria. Penticton, July 6th to 8th.
Marmopteryx marmorata. Okanagan Falls, May 4th.
Brephos infans. Okanagan Falls, May 1st.

COLEOPTERA (BEETLES).

The following is a list of beetles collected in the Okanagan Valley. A miscellaneous collection of over 1,000 still awaits classification:—

Coccinella transversalis.
Comontis ovalis.
Corymbites fallax.
Trogisita chloridea.
Trichodes ornatus.
Platynus subsericeus.
Chalaenis interuptus.
Creophillus villosus.
Clerus sphegus.
Elodes cordata.

Didolonycha fulgida.
Saprinus lugens.
Lachnosterna errans.
Cincindella oregona.
Cincindella obliquata.
Haltica bimarginata.
Chalcophaga angulicollis.
Podabrus comei.
Silpha lapponica.
Necrophorus melschemeri.
Meloe montanus.
Geoderces melanothrix.
Cleonus 4 lineata.
Rhagium lineatuna.
Leptura lætifica.
Ellychnia californica.

A TRIP UP MOUNT CHEAM.

By A. H. Bush.

Mount Cheam stands on the south bank of the Fraser River, overlooking Agassiz. It is a beautiful mountain and an ideal collecting-ground, both from an entomological and botanical standpoint. It takes the greater part of a day to reach timber limit, where a fine choice of camping-grounds await the weary climber. Starting from the Fraser River, we pass through some heavy timber and dense underbrush which is characteristic of this district. The maidenhair fern (*Adiantum pedantum*) and deer-grass (*Aclys triphila*) grow here in great profusion. Some distance up the side of the mountain the underbrush gradually thins out and the character of the timber changes. At 4,000 feet we have lost the Douglas fir and cedar, the white fir and hemlock taking their places. Between 5,000 and 6,000 feet up we pass many open glades, and here the first alpine flowers are encountered. We pass knee-deep through the large mountain-musk (*Mimulus lewisii*) and patches of heather, and so up through these park-like hillsides we climb till we reach the ridge, when the splendid beauty of the mountain bursts on our view.

To the south, west, and east stretch meadows and rolling hillsides, a blaze of colour with flowers of many kinds. Over these meadows tower the rock and snow peaks of "The Lady" and "The Angel." Here we pitch camp convenient to some stream or snow-bank. Close to and occasionally forcing their way through these snow-banks, we find the glacial lilies with their beautiful golden flowers, amidst, possibly, various patches of red snow. This later phenomenon is caused by a micro-scopic fungus which gives the snow a pink or blood-red appearance. In the wet hollows, formed by melting snow, the ground is covered with a carpet of buttercups. All colours of flowers are to be seen, for on the hillsides the white valerian, the red painter's-brush, and the blue lupines form the most conspicuous colours. In passing along the hillside we notice a plant 3 or 4 feet high with large green leaves and a spike of bright-green flowers. This is called "*Veratrum viride*." We see, again, acres of mountain-blueberry only a few inches high, and on the ridges masses of the light-purple phlox, spiræa, and rock roses. At our feet we may find the Arctic willow, which rises only 3 or 4 inches from the ground.

At the summit of the mountain, which is formed of broken slate, we see thousands of ladybirds in the cracks of the rocks. Why they should congregate thus on a mountain-peak awaits explanation. Here also many butterflies are seen—"painted-ladies," white argynnis, "chequer-spots," *Vanessas*, *Erebias*, various "blues," and occasionally some rare tiger-moths such as *Neoarctia parrowii* and *N. brucii*. The moths are well represented on the mountain. Many Noctuids have been taken, which all appear to fly in the daytime, no doubt on account of the cold nights. Bees and wasps are very plentiful, and the flowers of the mountain-ash form a fine banqueting-hall for flies and beetles.

Looking down into the valley, we see the districts surrounding Agassiz and Chilliwack spread out like a chequer-board, with the river like a silver ribbon flowing along. Beyond Agassiz, Harrison Lake can be seen for forty miles of its course, with "Fire" Mountain at its head. To the south the majestic summit of Mount Baker, covered with its eternal snow-cap, greets the eye; and this is the scene before us